HERBAL THERAPY IN SMALL SCALE AQUACULTURE: AN ETHNOBOTANIC APPROACH IN NORTH VIETNAM AND CENTRAL JAVA, INDONESIA

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Introduction

The use of natural compounds as antimicrobials or for other biological activities in aquatic animals may significantly contribute to improve health management of farmed fish, and to reduce environmental and food safety impacts related to antibiotic resistance and chemical residues which are a major concern in South-East Asia for the sustainability of aquaculture.

Despite the growing interest for herbal therapy and the increasing number of scientific studies, there has been no ethnoveterinary study that assesses the importance of traditional phytotherapy in aquaculture. Researchers and pharmaceutical entrepreneurs agree that ethnobotanic derived compounds have greater potential for the development of novel therapeutic products.

Material and Methods

Ethnobotanical surveys were organized in **Java centre** and two provinces of **North Vietnam** (Lao Cai and Son La) in order to identify plants and their use by fish farmers.

- Use of official statistics or expert approach to determine the studies area
- Determine a realistic representative sample size according number of investigators/interviewers engaged

Ethnobotanical Indicators

Use Value (UV)= shows the relative importance of plants known locally

Informant Consensus Factor (ICF)= demonstrates the importance of plants for each therapeutic indication or its specific uses

Fidelity level (FL) = shows the importance of a plant relative to the others in accordance with a therapeutic indication

Viet Nam	Central Java
Expert approach : 2 provinces with contrasted aspects of aquaculture production 10 districts →135 villages	1 province 182500 ponds 7 districts belonging to the quartile superior =>75% (5898 ponds) →138 villages
280 informants	380 fish farmers

Knowledge Attitude Practices (KAP) Questionnaires

KAP questionnaire	Viet Nam	Central Java
Identity and social aspects	16	10
Farm	14	8
Fish	9	-
Disease and Health management	12	5
Plants	15	14
Herbal Therapy	9	14
Knowledge and market	-	8
Σ	**75**	**59**

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Ethnobotany for Sustainable Therapy in Aquaculture and Food Safety
ESTAFS

BIO-ASIE 2013-2014

Starting from Ethnobotanical and Ethnopharmacological approaches, innovative for aquaculture

Aims of ESTAFS :

Promoting rational use of plant biodiversity for sustainable aquaculture pharmacopoeia that should be: **Socially acceptable; ecologically sustainable and economically viable**

Objectives of ESTAFS :

. Valorise local knowledge by ethnobotanical studies
. Determine antimicrobial and immune stimulant activities of plants and their toxicity in fish
. Setting up of a scientific network for the study of ecofriendly pharmacopeia in ASEAN countries

Results

Overall 659 fish farmers from 149 villages were interviewed.

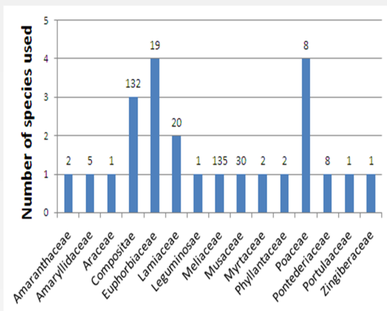
- Overall 80 species of plants were identified: 56 spp. for Java Centre and 24 in North Vietnam

- Plants are mostly used against fish diseases and other specific therapeutic indications.

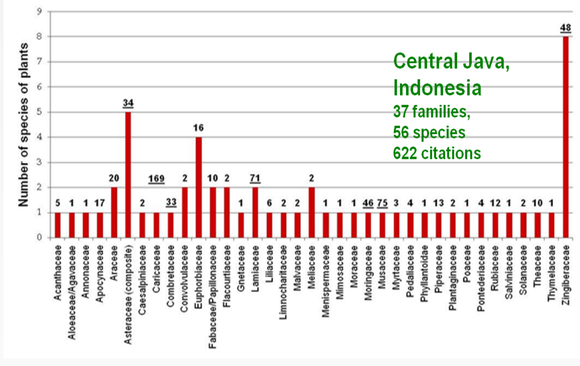
- Some plants are used for several ailments showing low specificity of use.

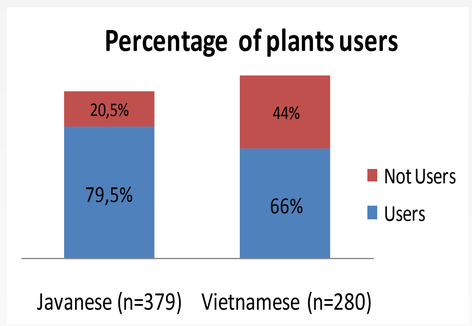
- Territory, age and type of household farms are factors affecting the plant use.

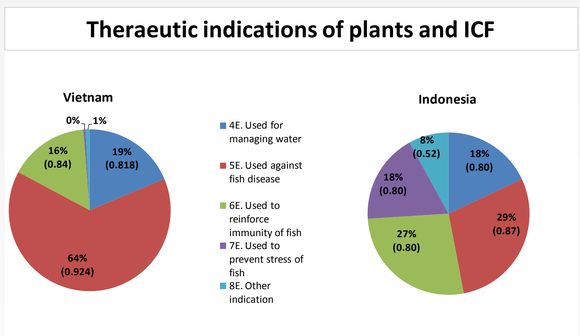
- Professional training in aquaculture significantly increase the use of plants.



Viet Nam
15 families
24 species
367 citations







Conclusion

With another ethnobotanical study in West Java (Caruso et al., 2013), ESTAFS highlights the use of 120 vegetal species by fish farmers in both countries.
Between tradition and innovation, fish farmers are still seeking for appropriate use of plants. They exchange their knowledge often by words of mouth, but this is still empirical.
Thus, a scientific work is needed in order to develop natural biocides and rational ecofriendly pharmacopeia for more sustainable aquaculture. Meanwhile, the development of herbal therapy will require the common commitment between fish farmers, extension services, officials and researchers.

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